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PACIFIC TELESIS
Group-Washington

ORIGINAL
FILE



November 9, 1992

Donna R. Searcy
Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Ms Searcy:

Re: *CC Docket No. 90-314 and ET Docket No. 92-100 - Amendment of the Commission's Rules to Establish New Personal Communications Services*

On behalf of Pacific Telesis Group, please find enclosed an original and six copies of its "*Comments*" in the above proceeding.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,

William F. Adler

Enclosures

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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| In the Matter of | ) | GEN Docket No. 90-314 |
| | ) | ET Docket No. 92-100 |
| | ) | |
| | ) | RM-7140, RM-7175, RM-7617, |
| | ) | RM-7618, RM-7760, RM-7782, |
| Amendment of the Commission's | ) | RM-7860, RM-7977, RM-7978, |
| Rules to Establish New Personal | ) | RM-7979, RM-7980 |
| Communications Services | ) | |
| | ) | PP-35 through PP-40, PP-79 |
| | ) | through PP-85 |

# COMMENTS OF PACIFIC TELESIS GROUP

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Date: November 9, 1992

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## SUMMARY

Pacific Telesis Group believes that Local Exchange Companies (LECs) are well-qualified to offer both wholesale and retail Personal Communications Services. As Professor Jerry Hausman demonstrates in his attached Affidavit, the LECs can provide mass market retail PCS, building on their experience and existing infrastructures. LECs should be permitted to obtain PCS licenses; they will make significant contributions to PCS.

The Commission should award three PCS licenses, each with 25 MHz, in the 487 Basic Trading Areas. 65 MHz should be allocated to nonlicensed use.

Licenses should be awarded using lotteries; licensees should not be permitted to offer service until the PCS industry has agreed upon Common Air Interfaces.

Before the
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Washington, D.C. 20554

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| | ) | PP-35 through PP-40, PP-79 through PP-85 |

## COMMENTS OF PACIFIC TELESIS GROUP

### I. THE EVOLUTION OF TELEPHONY

In the 19th century, the telephone was invented and telecommunication within local communities began. During this century, telephony has evolved, and universal service--a telephone in every home, connected to every other telephone in the country--has become a reality. Now, on the eve of the 21st century, the telecommunications industry continues to evolve. Pacific Telesis Group believes that telephony will develop into a truly personalized service, available anytime, anywhere, and with a multitude of options. Personal Communications Services (PCS) will be a fundamental part of telecommunications evolution in the next century, as universal service has been in this century.

What we mean by PCS is more than just the new wireless services (licensed and nonlicensed) to be offered at 2 GHz; PCS will be an entirely new way of integrating telecommunications

services. PCS will include a wide array of powerful computer, switching, and information services available to the mass market through new wireless technology and Intelligent Networks. American consumers will have truly personal communications at their fingertips.

The introduction of PCS will continue the success story of the dynamic wireless industry--cellular, paging, and other wireless services.

- In cellular, enormous changes have taken place over the past eight years in market demand, technology, and system evolution. Subscribers have gone from 0 to 9 million in just nine years. Digital technologies have vastly increased capacity, efficiency and call quality. Handsets are lighter and cheaper. Roaming and automatic call delivery are available.
- In paging, similar changes have occurred. Paging has evolved from an alert service with tone-only function to a wide array of advanced services, including full text and information services. The price of pagers has fallen, and they are available at retail distribution channels. Total paging subscribers now exceed 12 million.
- Finally, other wireless businesses are also emerging and growing, including radiolocation services, low earth orbit cellular, wireless PBXs, and advanced cordless telephones.

Key wireless industry analysts predict that this rapid growth will continue.[1]

PCS will bring these services and others together to create a more accessible, convenient, and affordable communications medium. The Pacific Telesis Group (Telesis) vision uses the individual strengths of each of our companies to offer a comprehensive set of Personal Communications Services that access people, not locations. These services will provide flexible and efficient information flows--under customer control--using wireline and wireless media.

Many of the building blocks necessary for this PCS vision to be realized are already in place. Consumers can now have low-cost, high-quality, high-capacity wireline service at home, high-quality PBX or Centrex service at work, and portable cellular and paging services at almost all locations. However, today these services are fragmented and do not work well enough together to allow seamless availability. Moreover, they fail to give people all of the alternatives for which there is demand. Evidence of current services' shortfall from our PCS vision is the fact that almost all of today's wireless voice

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[1]Demand Analysis Study for Personal Communications Networks, September, 1990; Opportunities in the U. S. Wireless In-Building Business Communications Market, Alexander Resources, December, 1990.

is outbound calling, wireless messaging is inbound, and 25% of wireline calls go uncompleted.[2]

Two building blocks needed to bring PCS to fruition are currently being developed. These are: Intelligent Networks that will increase the accessibility and utility of new and existing services; and diverse wireless and wireline access options for customers.

Intelligent Networks

Accessibility enhancements to permit communications "anywhere, anytime" will come from intelligent networks that can manage mobility and provide interconnection with the access services and venues that subscribers will need. Utility improvements such as billing flexibility and selective call screening and routing are necessary to make the idea of being in touch "anywhere, anytime" palatable to the public.

Access Options

Enhancements of existing services, as well as new PCS services, will bring a diversity of convenient access alternatives, including more affordable two-way communications in diverse venues (e.g., while visiting another person's

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[2]Pacific Bell SES Data collected for the month of September, 1992 (3 million observations statewide on Line Busy, Don't Answer, Intercept, Ineffective Attempt, Equipment Blockage & Failure, and Don't Wait).

office or just walking around town). Lightweight, inexpensive, dual mode handsets will facilitate access options. As a result of these enhancements, PCS users will be in touch with the world, predictably and economically, as they travel to different places throughout the day.

Two Telesis subsidiaries, PacTel Cellular and Pacific Bell, hope to offer PCS as 2 GHz licensees.[3] PacTel Paging, another Telesis subsidiary, expects to be an active participant in PCS (ranging from advanced paging to data services). PacTel Paging will file separate comments in these proceedings on 900 MHz issues. PacTel Cellular will seek PCS licenses outside of its present cellular service areas and will build on its cellular experience in offering PCS. In areas where it now provides cellular service, PacTel Cellular will develop an array of services and network intelligence, to better serve its existing customers and expand its customer base.

These comments will focus primarily on the Telesis wireline subsidiaries, Pacific Bell and Nevada Bell, and their PCS vision, for several reasons. First, the Commission has

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[3]Another subsidiary, Telesis Technologies Laboratory (TTL), holds the experimental license for Telesis. TTL's PCS work includes: In-Building PCS Technical Trials, Consumer PCS Technical Trial, Full Service PCS Technical Trial, Advanced Architecture Paging, CDMA Testing, and Spectrum Sharing.

specifically raised issues concerning Local Exchange Carriers (LECs), including whether LECs should obtain PCS licenses in the 2 GHz band, which must be addressed. Second, the Telesis LECs see PCS as an important future user of the Public Switched Telephone Network (PSTN). PCS calls will take advantage of existing PSTN investment and will support the continued expansion and improvement of the PSTN. Finally, and most importantly, Telesis believes the LECs' PCS vision, described in Section II below, is exciting and unique.

## II. THE TELESIS LECS' PCS VISION

### A. Wholesale And Retail PCS Services

As we analyze the future of PCS, we see two roles for the LECs: "wholesale" and "retail" PCS offerings. At the wholesale level, LECs will serve all retail PCS providers. LECs will provide interconnection to the PSTN; in addition, they may offer services such as billing, transport, and Intelligent Network services, described below, to the extent technically and economically feasible. Both interconnection and other services will be provided at tariffed rates. Appropriate safeguards will be in place so that ratepayers are protected and there is no possibility of cross-subsidy to LEC retail PCS offerings.

Retail PCS was the focus of Pacific Bell's Pioneer Preference Request in Docket No. 90-314. This proposed service would:

- Combine developments in wireless access technology and network intelligence;
- Provide a high-quality voice and data communication service;
- Utilize a low-cost handset design;
- Lower costs (a) by using the PSTN and other existing infrastructures to take advantage of economies of scope and scale, (b) by using its knowledge of wireline transport frame structures and other cost-saving interfaces, and (c) by designing its PCS system to maximize cost savings and broad availability;
- Function well in both outdoor and indoor environments;
- Use the Intelligent Network to enable true person-to-person communications.

B. Intelligent Networks

The Intelligent Networks now being developed by LECs, IECs, and cellular providers will provide the call management, billing flexibility, and integration with vertical services (e.g., voice mail) that are essential to improve the utility of PCS. These Intelligent Networks will also support the locator and mobility management applications which will bring much needed accessibility to PCS.

However, these Intelligent Networks are of limited usefulness unless they are interconnected to other alternative services and places that people will want to communicate from.

We expect that Pacific Bell's Intelligent Network will be interconnected to more alternative networks (cellular, paging, SMR, IEC) and private systems (PBX and Centrex) than any other. Thus, our Intelligent Network will have the best ability to coordinate the different PCS elements and options and simplify seamless PCS availability across networks. Pacific Bell intends to offer Intelligent Network services to the PCS industry on very attractive terms as part of its "wholesale" PCS offerings. On the retail side, Pacific Bell intends to build upon the Intelligent Network in designing and operating its PCS system; Pacific Bell will, of course, be subject to appropriate safeguards so that its retail operation receives no unfair advantage.

C. Infrastructure

Existing local infrastructures - both LEC and cable - can provide an economic base for low-cost, high-capacity, reasonably ubiquitous PCS. Extensive networks which are already in place can facilitate microcell interconnection and transport virtually anywhere. Switching and billing capabilities can similarly be used for PCS operations. The use of all of these existing infrastructures, developed at substantial investment, can facilitate delivery of mass market PCS services, lower the cost to deploy them, and thus reduce their prices.

D. Mass Market Approach

Our research shows that residential and small business demand will form an important part of the total wireless market penetration of over 30%. Pacific Bell's experience at serving these mass market customers gives it unique qualifications as a PCS licensee. First, Pacific Bell has a history of building and operating large scale networks and services. For example, Pacific Bell's residential voice mail service, which now has 250,000 mailboxes, was implemented in two years. In addition, Pacific Bell plans to build on its existing infrastructures to gain significant economies. While many of these infrastructures could be made available to any PCS licensee, Pacific Bell intends to make full use of these economies, while other providers may choose not to use them. Finally, in contrast to others who have more limited "niche" approaches, Pacific Bell specifically plans a mass market approach, using existing infrastructures to the extent possible. This distinct approach to PCS is evident in Pacific Bell's Request for a Pioneer's Preference.

## III. ELIGIBILITY TO PROVIDE PCS

Telesis believes that LEC participation in PCS will significantly promote PCS development. LECs are well qualified to develop and provide a low-cost, high-quality, reasonably ubiquitous service. As discussed above, LEC qualifications are derived from several sources - economies of scale and scope

from the PSTN and other infrastructures, and successful experience in mass market communication services.

Economic analysis supports our views on LEC eligibility. Prof. Jerry Hausman of the Massachusetts Institute of Technology has analyzed the issue of LEC eligibility for a PCS license at our request. Prof. Hausman, a distinguished economist who has studied the telecommunications industry extensively, has prepared an affidavit explaining in detail the reasons why LECs should be able to obtain these licenses. This affidavit, Attachment 1 hereto, will be referred to in our Comments as the Hausman Affidavit.

A. LEC Participation Promotes The Commission's Four Goals

LEC participation in PCS will promote the Commission's four goals in providing spectrum and establishing a regulatory structure for PCS:

- competition in the delivery of services;
- speed of deployment;
- universality;
- diversity of services.[4]

1. Competition

As Chairman Sikes has stated, "genuine competition requires inclusive, open entry policies."[5] Because the LECs

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[4]FCC News Release in Gen. Docket 90-314 and ET Docket 92-100, 7-16-92.

[5]Remarks of Chairman Sikes before the Cellular Telecommunications Industry Association, 2-11-92.

can be capable providers of PCS, their participation would enhance competition; excluding the LECs would retard competition. The LECs are obvious providers of PCS because they have the resources - technical, financial, and human - to design, construct, and operate a PCS system. As discussed above, Pacific Bell has a coherent, distinct plan to provide mass market PCS, using its infrastructures and Intelligent Network. Permitting LECs to participate in PCS will bring about genuine competition.

The Commission has recognized that cable providers are logical PCS providers because they have an existing network to support PCS and can capitalize on that network.[6] If that argument supports cable entry, it must also support LEC entry, since LECs have an even larger network, plus existing sophisticated switching and other infrastructures.

2. Speed Of Deployment

LEC eligibility will promote speed of deployment to the mass market. First, by building on their existing infrastructures, LECs will broadly deploy PCS, while we expect that others will be slower to serve the mass market. Second, LECs have the trained personnel and other resources on hand today to design and deploy a system, and will not have to

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[6] Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Dkt. No. 90-314, Tentative Decision and Memorandum Opinion and Order, Released November 6, 1992, para. 9.

spend time acquiring these assets. Third, the financial community will recognize the LECs as capable providers, and thus the LECs will be able to obtain the capital needed for mass market development and deployment. Fourth, eligibility for a PCS license will encourage the LECs to make the investments necessary to prepare their infrastructures and Intelligent Networks for PCS, thus speeding the deployment of PCS for all providers.

3. Universality

LEC participation will produce a broader access to and acceptance of PCS. LECs have traditionally focused on large-scale mass market services rather than niche services. The LECs will be naturally inclined towards deployment of a low-cost, widely available PCS offering, using their existing infrastructures.

Furthermore, much of the switching and transmission equipment, such as SS7 equipment, currently in the network for wireline services can be used effectively to support our proposed vision of PCS. Prof. Hausman notes that the use of equipment in providing two or more services leads to economies of scope--the cost of providing both services together is less than the sum of the costs of providing the services separately. (Hausman Affidavit, para. 16.) Lower costs will lead to lower prices; both wireline and PCS consumers will be

better off. The Commission has recognized this principle many times.[7]

4. Diversity Of Services

Diversity of PCS services will also be advanced by LEC participation. To maximize diverse approaches to PCS, including service options and system design, the Commission should permit all knowledgeable parties to participate. Our PCS vision shows that LECs can make important contributions to PCS. Pacific Bell, as shown in its Pioneer's Preference Request, has already furthered the development of PCS and should be permitted to do more.

LEC participation in retail PCS will encourage the development of LEC Intelligent Networks and other infrastructures usable by diverse PCS providers. If a LEC has a retail PCS license, it will have more incentive to develop these infrastructures for PCS use, because it will be sure that at least its own PCS system will use them (other PCS providers may choose to use other available infrastructures, such as cable or IEC networks). With many competing demands on its sources of capital, a LEC cannot invest in PCS infrastructure

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[7] See, for example, Computer III Remand Proceedings: Bell Operating Company Safeguards and Tier 1 Local Exchange Company Safeguards, CC Dkt. No. 90-623, Report and Order, 6 FCC Rcd 7571, paras. 8, 92 (1991).

developments unless it can be sure of demand for those developments. Thus, the development of diverse PCS systems using the PSTN is promoted by LEC eligibility.

B. LECs Should Not Be Unfairly Restricted

PCS licenses will represent ways to meet the public's changing telecommunications needs. The telecommunications evolution to PCS is like the move from propeller to jet engines in aircraft design, or the move from mainframe computers to micro processors in computer processing. In today's competitive world, our national interests are not served by preventing any provider, let alone some of the most capable providers, from using new technologies. We would not prevent Boeing, Intel, or Microsoft, which are recognized as international leaders, from using new technologies to develop new products; we must not preclude the LECs from using new wireless innovations to develop new products. As Chairman Sikes has said in another context, LEC exclusion would "freeze the frame" on the technology LECs could use to provide their services and lock them into "second class products." LECs must participate "to assure our nation stays on the leading edge of a dynamic radio-based telecommunications market."[8]

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[8]Remarks of Chairman Sikes before the Cellular Telecommunications Industry Association, 2-11-92.

C. Cellular Carriers Should Also Be Eligible To Provide PCS

Cellular carriers should be permitted to provide PCS in areas outside their present cellular franchise areas. Like LECs, they are obviously capable PCS providers whose participation will serve the Commission's goals. Their experience with wireless systems will make them vigorous competitors to existing cellular carriers and other PCS licensees. Because of their wireless experience, financial resources, and well-trained personnel, they will be able to design and deploy PCS systems rapidly. They have been at the forefront of wireless development, not only in the United States but also in many other countries.[9] Excluding this well-qualified group would slow PCS deployment and lessen competition and diversity in PCS.

D. Elimination Of Separate Subsidiary Requirements Will Not Help The Development Of PCS

The Commission has asked for comment on eliminating the BOC separate subsidiary requirement for cellular telephone service. (NPRM, Para. 76) Telesis favors the elimination or minimalization of government regulatory barriers and controls, and thus we agree that a LEC should be able to offer PCS or

[9]For example, a Telesis subsidiary, Pacific Telesis International (PTI), has been part of consortia which received wireless licenses in Germany, Portugal, Japan, Spain, and Thailand. PTI serves as the technical partner for the Mannesman Mobilefunk cellular system in Germany, which began commercial operation in June 1992 as the first large-scale GSM operation in Europe.

cellular service without use of a separate subsidiary.[10] Integration of PCS operations into the LEC will enable the LEC to achieve economies of scope and scale and will thus benefit the public. (Hausman Affidavit, para. 19.) The Commission has noted numerous times that structural separation is too costly because it eliminates many economies of scope and scale.[11]

However, the Commission should realize that changing this rule today will not mean that existing cellular operations will be integrated into the BOCs--the proposal comes too late, after the cellular rocket has been launched. The efficiencies which once could have been obtained cannot now be captured. Under the Commission rules (47 C.F.R. §22.901 (c) (1991)), the cellular entities have been set up for many years as separate subsidiaries, with separate infrastructures, distribution channels, and billing and other operational support systems. It would be costly to dismantle these separate systems and integrate the cellular provider into the BOC; little would now be gained by doing so. The efficiencies from using existing

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[10]Of course, appropriate non-structural safeguards would be needed, as the Commission notes in footnote 51.

[11]See, e.g., Furnishing of Customer Premises Equipment by the Bell Operating Companies and the Independent Telephone Companies, CC Dkt. No. 86-79, Report and Order, 2 FCC Rcd 143, paras. 27, 29 (1987).

infrastructures as PCS is designed and built do not apply, since the separate cellular infrastructure has now already been built.

Furthermore, in most cases the cellular provider is a partnership between the BOC affiliate and other non-affiliate partners. In these cases, the cellular partnership could not readily be made a part of the BOC. Large transaction costs would result from integrating the two businesses at this point, if indeed the non-affiliate cellular partners would agree at all.

For all of these reasons, changing the rule will not result in the integration of existing affiliated cellular businesses and BOCs. The BOCs will not be able to provide PCS by using cellular frequencies and cellular infrastructure. Therefore, the BOCs should be eligible to offer PCS on an integrated basis, whether or not they have an affiliate which offers cellular service. (Hausman Affidavit, para. 29.)

## IV. LICENSING ISSUES

### A. Number Of Licensees

The number of licenses and the amount of spectrum given to each are interrelated. Without adequate spectrum, PCS will be difficult to provide at reasonable price and quality. With too many licensees, there will be insufficient demand and no one will want to make the necessary investment in PCS. The objectives both for licensing providers and allocating spectrum

should be to give capable providers an incentive to introduce widespread PCS rapidly. In other words, PCS providers need sufficient scale in a given market to leverage the costs of their network investment over a sufficient number of subscribers if they are going to offer the low-priced alternatives the Commission wishes to encourage.

We support three new PCS licenses in each area. Our position is based on our evaluation of the economic viability of adding new wireless licensees to the existing wireless participants (cellular and Specialized Mobile Radio). We believe three new licensees will encourage technology expansion, lower costs, and meet mass market consumer needs in a timely manner.

Telesis has used economic models to determine the value of PCS licenses depending upon how many licenses are available, including existing cellular and enhanced SMRs. The assumptions include aggressive demand projections from numerous public marketing studies, technical and capital costs of providing coverage with a 1.8 GHz system, and marketing and distribution costs based upon our experience in multiple telecommunications businesses. These models suggest that in order to make PCS an economically viable service, three is the maximum number of licenses that should be awarded even in the country's largest Basic Trading Areas.

Some argue that "too many" licenses is a market concern, and not a regulatory one. These analysts claim that,

if the market cannot support the number of license opportunities available, some businesses may fail, but that is the risk of a free market. The issue is not simply one of failed businesses, however, but of the kinds of systems that will be created. Wide-area coverage is a critical element of a successful mass market service, and millions of dollars of investment will be needed to build a sufficient number of base stations to achieve such coverage. Unless consumers have some confidence of using the service throughout the community in which they live and work, the service will not be in demand. While low functionality systems may develop, the true promise of PCS will be foiled.

PCS is very likely to be delayed if the number of licenses awarded does not correlate to total market demand. Capital will not be made available if the risk of failure is too high. These harmful consequences from issuing too many licenses are shown by the U.K. experience. Network rollout has been delayed and scaled down as licensees sought to rationalize their involvement to an economically justified level. Three PCS licenses were awarded in 1990, but two then entered into a joint venture and returned a license back to the government. The merged companies, Unitel and Mercury, concluded that consumer interests could be best served by the creation of a combined force with the scale and resources to enable it to compete in the telecommunications marketplace. See Telocator, Vol. 16, No. 9, October, 1992, pg. 17.

Also, if more than three licenses are issued, insufficient spectrum will be available for each one. As discussed below, a minimum of 25 MHz is needed for each licensee, plus 65 MHz for unlicensed services. Since only 140 MHz are being considered for PCS, there is insufficient spectrum for more than three licensees.

On the other hand, too few licenses will not provide enough competition. There will be insufficient opportunities for diverse approaches and the participation of many companies. The Commission has recognized that diverse approaches and broad participation are desirable. NPRM, Para. 59.

Telesis has therefore concluded that a three license-system is the optimum choice. As explained above, both LECs and current cellular providers should be eligible to obtain these licenses. First, enough spectrum is available for three licenses, each with 25 MHz. Second, there will be sufficient competition because there will actually be six wireless competitors in major markets: two cellular, one SMR, and three PCS.[12] Six providers, each with enough capacity to serve a large share of the overall market, will provide plenty of competition.

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[12]Where the LEC and cellular carrier are affiliated, Prof. Hausman assumes a total of five competitors and shows that this is ample for vigorous competition. Hausman Affidavit, Paras. 30-35.